

LARP Collaboration Meeting April 2005

R&D for Long Wind & React Coils

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Goals

Goals: develop in-house expertise to support LARP program

- 0.5M coils for initial learning (existing infrastructure; tooling, oven, etc. – no equipment needed)
- 1M coils (moderate tooling only - no oven needed)
- 4M coils (need new oven & equipment)

Plan

- Practice winding reacting and impregnating on 0.5M, 10-turn coils
- Design, build 1M W&R coil tooling
- Design, build 4M W&R coil tooling, oven
- Initial coil tests: 2-4 coils in support fixtures (all)
- Follow-on tests: integrate into magnets as possible

0.5M	→	12T
1.0M	→	POP
4M	→	D1

List – Major Tools and Equipment Needed, Status

Existing:

1. Winding Machine
2. Curing Station
3. Vertical Testing Equipment, Dewar*



to be extended later for 1M,
4M coils

* Dewar already has
capacity for 4M coils

Needed:

1. Reacting mandrel & associated equipment
2. Reacting oven (buy vs. share)

Existing Tooling and Equipment

Automated Winding Machine:

- Winding head mounted to wide cross frame for versatility
- Computer controlled motion and operation
- Independent cable and Nomex tension if needed
- Coil length easily accommodated by installing new simple shuttle table of desired length (limited only by width of building)



Existing Tooling and Equipment

Curing Facility:

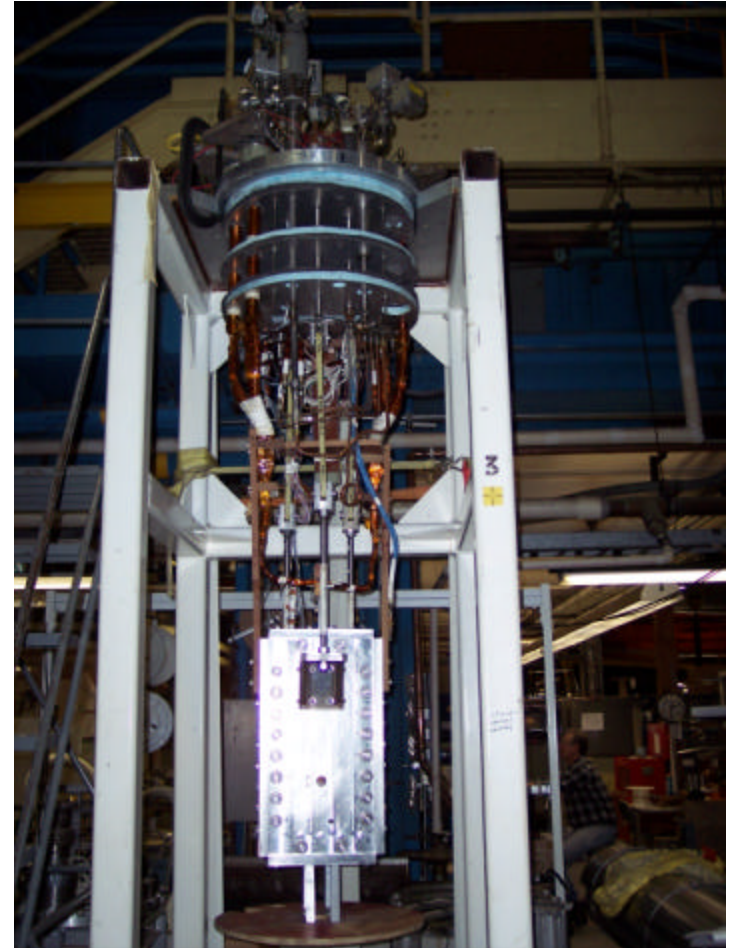
- Automatic programmable heating cycle
- Heated base and cover for independent uniform temperature control
- Easily extended to needed length.



Existing Tooling and Equipment

Vertical Testing Tophat:

- ? Existing (from base program)
- ? 4x10KA, 2x5KA leads
- ? Needs new support adaptors



Schedule

Initial Tests:

- FY06 – 0.5M coils
- FY07 – 1M coils
- FY08 – 4M coils

Follow- on Tests TBD